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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,984	08/20/2001	Sashiro Uemura	96790p374	7676

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EXAMINER	
GUHARAY, KARABI	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/933,984	UEMURA ET AL.	
	Examiner	Art Unit	
	Karabi Guharay	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,6 and 8-12* is/are rejected.

7)☒ Claim(s) *4 and 7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/01/2004 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 5-6, 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fahlen et al. (US 5667418), and further in view of Kitamura et al. (US 6624589).

Regarding claim 1, Fahlen et al. disclose a vacuum fluorescent display (flat panel display, see Fig 1) comprising a front glass member (102) which has light transmission properties (being glass) a substrate (103) opposing the front glass member through a vacuum space (lines 42-48 of column 5); a phosphor screen formed on the of the front glass member which opposes the substrate having a predetermined large area display (lines 43-57 of column 12), an electron emitting portion (field emitter cathode, see Fig 9A) is mounted on the substrate to oppose the phosphor screen, an electron extraction electrode (206 of Fig 2A) arranged in the vacuum (lines 66-67 of column 5), and the

phosphor film is spaced apart from the emitter by a predetermined distance (see 222 and 223 of Fig 2A, lines 62 of column 6-lines 3 of column 7) and an insulating support member (support member 207 & 208) formed on the substrate having partitions for supporting the electron extraction electrodes (206) and dividing the electron-emitting surface into a plurality of regions (see Fig 2B, lines 8-19 of column 7), the partitions being made of ceramic material (lines 8-10 of column 9) which has secondary electron emission coefficient greater than 1, thus a larger number of secondary electrons than that of bombarded electrons are emitted.

But Fahlen et al. do not explicitly disclose a surface electron emitting portion, however teaches that instead of field emission cone one can use other type of field emitters (lines 39-42 of column 15).

Thus it would have been obvious to one having ordinary skill in the art the time the invention was made to use surface electron emitters in the device of Fahlen as suggested by Fahlen et al.

However, Fahlen et al. are silent about surface emitters comprising a coating film of a large number of carbon nanotubes.

Kitamura et al. discloses surface emitting field emitter (see Fig 10) comprising a coating film (17 of Fig 4A) containing carbon nanotube, in order to have improved electron emission (lines 45-58 of column 12).

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to use carbon nanotube as the surface emitter material since it is a preferred material for better electron emission.

Regarding claim 3, Fahlen et al. disclose that the partitions (207) are arranged substantially equidistantly to be parallel to each other (see Fig 2A & 2B).

Regarding claim 5, Fahlen et al. disclose that the partition divides the electron emitting surface into a plurality of regions of almost the same shape (see Fig 2A & 2B).

Regarding claim 6, Fahlen discloses that the electron-emitting surface of said surface electron-emitting portion is divided into a plurality of stripe regions parallel to each other (see Fig 2B).

Regarding claim 8, Fahlen discloses that the electron-extracting electrode is formed of a mesh-like metal plate, and is supported by said insulating support member to be spaced apart from the electron-emitting surface by a predetermined distance (see Fig 2A).

Regarding claim 9, Fahlen discloses that the electron-extracting electrode is formed of a conductive film formed at a top of said insulating support member (see Table I of column 28).

Regarding claim 10, Kitamura et al. disclose that the surface electron-emitting portion is formed of a larger number of carbon nanotubes formed of cylindrical graphite layers (lines 45-55 of column 12). The same reason for combining art as in claim 1 applies.

Regarding claim 11, Kitamura teaches that the surface emitters is formed of a plate like member having large number of through holes serving as a growth nucleus for nanotube fibers and a coating film is formed of nanotube formed on the metal member

(lines 61 of column 13 to line 6 of column 14). The same reason for combining art as in claim 1 applies.

Regarding claim 12, Fahlen discloses that the electron-emitting portion and the phosphor portion comprise a plurality of set of electron-emitting portions and phosphor film provided in the vacuum space in one-to one correspondence for each display pattern (since electron emitting region and the phosphor regions are equally divided by cathode spacers and anode spacers, see Fig 2A).

Allowable Subject Matter

Claims 4 & 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 4 & 7, the prior art of record neither shows nor suggests a display device comprising the limitations of claims 4 & 7 together with other cited limitations.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karabi Guharay

Karabi Guharay
Patent Examiner
Art Unit 2879